

## ABSTRACT OF THE INVENTION

The present invention provides devices and methods for Raman amplification and dispersion compensation. According to one embodiment of the present invention, a dispersion compensating device includes a dispersion compensating fiber having a dispersion more negative than about  $-50$  ps/nm/km over a wavelength range of about 1555 nm to about 1615 nm; a Raman gain fiber having a dispersion more positive than about  $-40$  ps/nm/km over a wavelength range of about 1555 nm to about 1615 nm; and a pump source operatively coupled to the dispersion compensating fiber and the Raman gain fiber, the pump source operating at a pump wavelength, wherein the dispersion compensating fiber has a Raman Figure of Merit at the pump wavelength, and wherein the Raman gain fiber has a Raman Figure of Merit at least about equivalent to the Raman Figure of Merit of the dispersion compensating fiber, and wherein the dispersion compensating fiber and the Raman gain fiber are arranged in series between the input and the output of the device. The device provides higher Raman gain than a conventional Raman-pumped dispersion compensating device.